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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CHUGHTAI, SARWAT	

ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,958	IIDA, SACHIO	
	Examiner	Art Unit	
	SARWAT CHUGHTAI	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Response to Argument

1. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mullar (US 2006/0002501 A1) in the view of Welland (US 2002/0034932 A1) and Comino et al. (5748681 hereinafter Comino).

Regarding claim 1, Muller discloses, a wireless communication apparatus for receiving a communication signal that frequency-hops among of frequency bands **(See Abstract and Paragraphs 15, 20; whereas Muller discloses system for performing fast frequency hopping)**, the wireless communication apparatus comprising:

a frequency conversion unit for multiplying a the received communication

signal by a local hopping frequency signal to convert the received communication signal **(See Paragraph 9; whereas Muller discloses frequency converter is configured to receive the digital value from the multiplexer of the-frequency tuner, to convert the digital value to an analog value, and to send the analog value to the multi-band oscillator);**

a reception processing unit for filtered communication signal **(See Paragraph 15; whereas Muller discloses processor)**

capacitors corresponding to the frequency-hopping bands, and switches for coupling the converted communication signal to the capacitors in synchronization with the frequency hopping **(See Paragraph 41; whereas Muller discloses oscillator may achieve band selection using switched MOS capacitor)**.

Muller discloses, explicitly fails to discloses, capacitors in parallel.

However, Welland discloses, capacitors in parallel **(See Paragraph 77 and Figure 7; whereas Welland discloses capacitor/switch circuits connected together in parallel).** It would have been obvious at the time the invention was made to an ordinary skills in the art to modify the system of Mullar with capacitor connected together in parallel as taught by Welland, because because they provide an system with capacitors connected parallel that correspond to frequency hopping band.

Muller discloses, explicitly fails to discloses, a high-pass filter unit for filtering the converted communication signal.

However, Comino discloses, a high-pass filter unit for filtering the converted communication signal **(See Column 2, Lines 66-Coulmn 3, Lines 7; whereas Comino discloses capacitor is coupled between first buffer and second buffer and the output of second buffer is coupled to the switch able high pass filter).** It would have been obvious at the time the invention was made to an ordinary skills in the art to modify the system of Mullar with capacitor behind coupled to the high pass filter as taught by Comino, because they provide an apparatus with a high pass filter that has the ability to convert communication signals to the capacitors.

Regarding claim 6, Mullar discloses, A wireless receiver **(See Abstract and Paragraphs 15, 20; whereas system includes a terminal and base station)**, comprising:

an antenna that receives a communication signal **(See abstract and Paragraph 39; whereas Mullar discloses terminal to receive an output signal and antenna)**;

a local oscillator that generates local oscillation signals having different frequencies **(See Abstract and Paragraph 7; whereas Mullar discloses oscillator generates a local oscillator signal having the selected center frequencies)**;

a mixer that multiplies the received communication signal with the local oscillation signals to output a frequency-converted signal **(See Paragraph 5; whereas Mullar discloses different RF switches are used to input different**

frequencies to the SSB mixer and by doing this the output frequency will be different from the input);

a frequency hopping controller configured to: control the local oscillator to frequency hop between the local oscillation signals **(See Abstract and Paragraph 7-8; whereas Mullar discloses frequency controller controls a center frequency for a plurality of center frequencies capable of transmission from a transmitter and selects the center frequency corresponding to a transmission center frequency from the plurality of center frequencies)**, and

Muller discloses, explicitly fails to discloses, capacitors coupled in parallel and an output of the wireless receiver via respective switches and control the first switches, in synchronization with the frequency hopping, such that only one of the switches is closed at a given time.

However, Welland discloses, capacitors coupled in parallel and an output of the wireless receiver via respective switches **(See Paragraph 77 and Figure 7; whereas Welland discloses capacitor/switch circuits connected together in parallel)** and control the first switches, in synchronization with the frequency hopping, such that only one of the switches is closed at a given time discharge **(See Paragraph 74 and 94; whereas Welland discloses capacitor is connected between ground and transistor, whereas transistor acts as a switch).** It would have been obvious at the time the invention was made to an ordinary skills in the art to modify the system of Mullar with capacitor connected together in parallel as taught by Welland, because because they provide an

system with capacitors connected parallel that correspond to frequency hopping band.

Regarding claim 8, Mullar discloses, A wireless receiver **(See Abstract and Paragraphs 15, 20; whereas system includes a terminal and base station)**, comprising: an antenna that receives a communication signal **(See abstract and Paragraph 39; whereas Mullar discloses terminal to receive an output signal and antenna)**;

a local oscillator that generates local oscillation signals **(See Abstract and Paragraph 7; whereas Mullar discloses oscillator generates a local oscillator signal having the selected center frequencies)**;

a mixer that multiplies the received communication signal with the local oscillation signals to output a frequency-converted signal **(See Paragraph 5; whereas Mullar discloses different RF switches are used to input different frequencies to the SSB mixer and by doing this the output frequency will be different from the input)**;

a frequency hopping controller configured to: control the local oscillator to frequency hop between first through third local oscillation signals **(See Abstract and Paragraph 7-8; whereas Mullar discloses frequency controller controls a center frequency for a plurality of center frequencies capable of transmission from a transmitter and selects the center frequency corresponding to a transmission center frequency from the plurality of center frequencies)**, each having a different frequency **(See Abstract; whereas**

Mullar discloses plurality of frequencies), in synchronization with the frequency hopping signals **(See Abstract and Paragraph 7-8; whereas Mullar discloses frequency controller controls a center frequency for a plurality of center frequencies capable of transmission from a transmitter and selects the center frequency corresponding to a transmission center frequency from the plurality of center frequencies).** ,

Muller discloses, explicitly fails to discloses, first through third capacitors connected in parallel between the output of the mixer and an output of the wireless receiver, open and close the first through third switches, and frequency-converted signals based on the first through third local oscillation signals are respectively coupled to the first through third capacitors and such that only one of the first through third switches is closed at any given time.

However, Welland discloses, first through third capacitors connected in parallel between the output of the mixer and an output of the wireless receiver **(See Paragraph 77 and Figure 7; whereas Welland discloses capacitor/switch circuits connected together in parallel)** open and close the first through third switches **(See Paragraph 74)**, and frequency-converted signals based on the first through third local oscillation signals are respectively coupled to the first through third capacitors and such that only one of the first through third switches is closed at any given time **(See Paragraphs 74-75,95; whereas Welland discloses on/off state)**. It would have been obvious at the time the invention was made to an ordinary skills in the art to modify the system of Mullar with capacitor connected together in parallel as taught by Welland, because

because they provide an system with capacitors connected parallel that correspond to frequency hopping band.

Regarding claim 2, Mullar discloses, the communication signal is an ultra-wideband signal **(See Abstract and Paragraph 2; whereas Mullar discloses fast frequency hopping OFDM supporting ultra wideband)**.

Regarding claim 3, Mullar discloses, the communication signal is an OFDM signal obtained by allocating pieces of data to carriers, modulating amplitudes and phase phases of the carriers **(See Paragraphs 2, 37)** and transforming the carriers into signals in the time domain while maintaining orthogonally of each the carriers in the frequency domain, and wherein the reception processing unit performs OFDM demodulation **(See Paragraphs 2-4, 37).**

Regarding claim 4, Mullar explicitly fails to discloses, the high-pass filter unit controls the switches to exclusively couple the converted communication signal to the capacitors in synchronization with frequency hopping.

However, Comino discloses, the high-pass filter unit controls the switches to exclusively couple the converted communication signal to the capacitors in synchronization **(See Column 2, Lines 66-Coulmn 3, Lines 7; whereas Comino discloses capacitor is coupled between first buffer and second buffer and the output of second buffer is coupled to the switch able high**

pass filter). It would have been obvious at the time the invention was made to an ordinary skills in the art to modify the system of Mullar with capacitor beind coupled to the high pass filter as taught by Comino, because they provide an apparatus with a high pass filter that has the ability to convert communication signals to the capacitors.

Regarding claim 5, Muller explicitly fails to discloses, high-pass filter unit has a parasitic-capacitance elimination unit for eliminating parasitic capacitance when the switches respectively decouple the converted communication signal from the capacitors.

However, Welland discloses, parasitic-capacitance unit for eliminating parasitic capacitance when the switches respectively decouple **(See Paragraph 55, 94-95; whereas Welland discloses off state and on state of the parasitic-capacitance that are parallel with the switch).** It would have been obvious at the time the invention was made to an ordinary skills in the art to modify the system of Mullar with parasitic-capacitance as taught by Welland, because they would provide a system with parasitic-capacitance unit.

Regarding claim 7, Muller discloses, the frequency hopping controller is further configured to control the second switches to discharge and capacitors in synchronization with the frequency hopping **(See Paragraph 41 and Figure 3)**.

Muller explicitly fails to discloses, second switches respectively coupling the capacitors to ground.

However, Welland discloses, second switches respectively coupling the capacitors to ground, wherein the frequency hopping controller is further configured to control the second switches to discharge **(See Paragraph 74 and 94; whereas Welland discloses capacitor is connected between ground and transistor, whereas transistor acts as a switch).** It would have been obvious at the time the invention was made to an ordinary skills in the art to modify the system of Mullar with the coupling the capacitors to ground taught by Welland, because they would provide a system with switches coupling the capacitors to ground.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARWAT CHUGHTAI whose telephone number is (571)270-7272. The examiner can normally be reached on Mon-Thurs 8:30AM-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571)272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SARWAT CHUGHTAI/
Examiner, Art Unit 2617

/NICK CORSARO/

Supervisory Patent Examiner, Art Unit 2617